SUPPLEMENTAL INVESTIGATION WORK PLAN

Former Framatome Facility
Lots 1 & 2 - 80 Wampus Lane
Milford, Connecticut

5 January 2010

Prepared for:

JMG Milford Realty, LLC
9 Hopes Farm Lane
Bedford, New York 10506

Prepared by**:**

Environmental Resources Management
77 Hartland Street, Suite 300
East Hartford, Connecticut 06108

ERM Project No. 0104024

Environmental Resources Management

77 Hartland Street, Suite 300
East Hartford, CT 06108
(860) 466-8500
(860) 466-8501 (fax)
http://www.erm.com

5 January 2010

Mr. Gennady Shteynberg
Connecticut Department of Environmental Protection
Bureau of Water Protection and Land Reuse
Remediation Division
79 Elm Street
Hartford, CT 06106

Re: ***Responses to DEP & EPA December 2, 2008 Letter***
Former Framatome Facility
Lots 1 & 2, 80 Wampus Lane, Milford, Connecticut

Dear Mr. Shteynberg:

On behalf of JMG Milford Realty, LLC (JMG), Environmental Resources Management (ERM) has prepared this letter to address comments provided by the United States Environmental Protection Agency (EPA) and Connecticut Department of Environmental Protection (DEP) regarding the above referenced property (the Site), and the final investigation and monitoring activities required to achieve compliance with the RSRs for the Site.

Background

The EPA and DEP comments were conveyed to JMG in two documents:

- a joint-agency letter dated December 2, 2008 (December Letter); and
- a second joint-agency letter dated April 17, 2009 (April Letter).

The December Letter was issued in response to the document entitled *Site Investigation and Remediation Status Report* (ERM, 6 March 2008). This document provides responses to the comments conveyed in the December Letter. For your convenience, each EPA/DEP comment is repeated below, followed by JMG's response.

The April Letter pertains primarily to the project schedule. A revised project schedule, consistent with these comments is provided herein.

Finally, a proposed Work Plan is also attached for your review. The proposed scope of work is based on the comments presented in the two joint-agency letters and is designed to demonstrate compliance with the applicable remediation criteria set forth in the Remediation Standard Regulations (RSRs – Regulations of Connecticut State Agencies (RSCA) §22a-133k-1 through §22a-133k-3). This work is also necessary to fulfill the requirements of the Connecticut Transfer Act, Connecticut General Statutes (CGS) §22a-134 (a) through §22a-134 (d), as amended. This Work Plan addresses both Lot 1 and Lot 2. Work in Lot 2 will be initiated upon completion of the Lot 1-related work; an approach that was agreed and documented in the July 1, 2009 Letter from DEP to Wampus Milford Associates, LLP.

<u>Response to CT DEP & EPA Comments</u>

1. *In several of the areas of concern (AOC), contamination concentrations were detected in excess of the Connecticut Remediation Standard Regulations (CT RSRs) Residential Direct Exposure Criteria (RDEC) default criteria. With respect to these and any other CT RSR criteria exceedances, please provide the intended approach for CTRSR compliance.*

The compliance approach relative to soils in the various AOCs includes the following components:

- For direct exposures, the Industrial/Commercial DEC (I/C DEC) will be used as the compliance point.
- The Site building will be used to render soils Inaccessible and Environmentally Isolated relative to the Pollutant Mobility Criteria (PMC).
- One or more Environmental Land Use Restrictions (ELURs) are anticipated at the Site to take advantage of these regulatory compliance options.

The number and nature of such ELURs will be dictated by the location and nature of the contaminants in question, and will require CT DEP approval. The entire Site will be restricted from Residential use, as defined in the RSRs. However, in AOCs where residual impacted soil remains below the Site building, such as AOC-5, the ELUR will include restrictions on disturbing such soil and/or removal of that portion of the Site building. ERM also understands that the presence of chlorinated volatile organic compounds (cVOCs) in soil below the Site building require remediation to the maximum extent prudent, as defined in the RSRs.

2. *Soil vapor data in the report was compared to the promulgated CT RSR soil vapor Volatilization Criteria (SVVC). CTDEP recommends use of the 2003 proposed SVVC, as those criteria reflect a more up to date understanding of the vapor intrusion pathway and the toxicity of certain constituents. CTDEP expects the 2003 SVVC to be promulgated with other revisions to the CT RSRs. If the 2003 SVVC are promulgated, the conclusions of the Site Report will need to be re-evaluated. Sample locations where soil vapor exceeded the 2003 SVVC are noted below.*

It is JMG's position that the currently promulgated SVVC and GWVC are applicable to the Site. If the 2003 proposed criteria are eventually finalized and promulgated by CT DEP, JMG will assess potential requirements for compliance with such future criteria, as required, and as appropriate. With the removal of the primary sub-slab soil-borne CVOC source (especially TCE) in AOC-4, and the decreasing cVOC levels present in the overburden groundwater, it is expected that the groundwater and soil vapor concentrations will decrease over time. This will be monitored as part of the post-remediation compliance requirements under the RSRs.

3. *Please provide notice to the building tenants regarding the potential for volatile organic compounds (VOCs) to enter the facility building a unsafe levels via vapor intrusion, as there are several locations where soil vapor concentrations exceed proposed SVVC.*

MWA does not believe that notification of the tenants relative to VOCs present in soil vapor is required under the current statutes, or warranted based on the cVOC concentrations present in soil gas below the Site building. Current operations at the Site building are all either commercial or light industrial. With the exception of one compound, 1,1-dichloroethene (1,1-DCE), detected in one sample location (SG-10) during the 2006 soil gas survey, the residual levels of VOCs in soil gas below the Site building are in compliance with the current I/C SVVC. The compliance approach for 1,1-DCE will be based on the ninety-five percent upper confidence level of the arithmetic mean for the data generated in 2006. This value is well below the I/C SVVC. ERM understands that this compliance option, if required, would have to include soil vapor sampling on a quarterly basis for a minimum of one year.

Levels of VOCs in both soil gas and groundwater are expected to continue to decrease over time at the Site. In 2005, ERM removed a significant soil-borne source of VOCs from below the floor in AOC-4, and the investigation work in AOC-5 and AOC-6 did not identify elevated levels of VOCs in soil below the main portion of the Site building, including the former degreaser area, located on the southern side of AOC-6. The data generated during the synoptic groundwater monitoring round recently completed in August 2009 showed that the shallow overburden wells that reside immediately downgradient from the Site building, including ERM-2, ERM-5, MW-15, and PMW-3, did not contain VOCs in excess of the Residential GWVC. ERM-4, located within AOC-7, contained generally higher levels of VOCs, including TCE and PCE. However, this AOC resides outside of the loading dock area and downgradient from the Site building with respect to groundwater flow, and the impacts are from the exterior storage of solvent in this area. The results of the August 2009 groundwater sampling round are included in Table 1, and in the associated time vs. concentration graphs. Also, the locations of the wells sampled are shown on Figure 1. All of these are included as attachments in the Work Plan, attached hereto.

4. *Section 3.1.2 states that AOC-2 was fully investigated and successfully Remediated in 2002 by WMA's contractor, ERM, and that no other remedial activities are required to satisfy the CT RSRs or RCRA Corrective Action. The August 2002 Annual Summary Report (the 2002 Report) noted that in 1997, 3,700 tons of sludge and soil were excavated from the landfill by FCI. However, two soil samples at the base of the excavation contained PCE at levels exceeding the CT RSR Industrial/Commercial Direct Exposure Criteria (I/C DEC). The 2002 Report does not cite the depth or location of these samples, so it is unclear whether the PCE-contaminated soil was excavated as part of the excavation in 2002. Please provide a figure showing the location of these samples and a table providing sample depths and constituent concentrations detected. Please also specify whether the locations of these samples was included in previous soil removal. If these locations have been remediated, please provide relevant details. If not, please outline WMA's intended approach for compliance with the I/C DEC for this area.*

   Elevated concentrations of TPH (>I/C DEC) in TB-15, collected in 1998, were found at 4-6 foot depth. However, the 2002 excavation in this area reportedly only extended to a depth of 3-4 feet. Samples were not collected at the base of the excavation because it was below the seasonal low water table. In addition, at post-excavation sample PE-E, total chromium was detected at 154 mg/kg, in excess of the I/C DEC for hexavalent chromium. No Results for hexavalent chromium are presented for this location. Please outline WMA's intended approach for compliance with the CT RSRs at these locations and any other where remaining soil exceeds CT RSR default criteria.

Regarding the question about potential exceedences of the I/C DEC for PCE, the highest PCE concentration reported by HRP in post-excavation soil samples collected during the 1997 landfill remediation work was 2,100 µg/kg. This post-excavation soil sample originated from the base of the excavation, at a depth that is below the seasonal-high water table, which has been documented at the ground surface during the spring. This concentration is below the RDEC and I/C DEC. This concentration does exceed the GB PMC; however, the PMC do not apply to this soil based on its depth relative to the groundwater table. No additional soil sampling or remediation is required in the area previously excavated by HRP in 1997.

The area around HRP soil boring TB-15 was included within the supplemental AOC-2 remedial excavation work by ERM. This excavation removed soil and sludge down to approximately 1 foot below the water table, where the remaining soil exhibited no visual, olfactory or field screening evidence of residual impacts. Post-excavation samples were collected from within the supplemental excavation area, focusing on the side walls of the excavation due to the shallow groundwater table. Since HRP sampled TB-15 in 1997, the grade has been lowered, but, based on field observations and screening data, it is believed that the 4-6 foot horizon in this sample corresponds with the bottom of the excavation performed by ERM and has therefore been removed. Absent the hexavalent chromium issue raised in the comment, all endpoint soil data indicated compliance with the RSRs. ERM will collect additional soil samples in this area for hexavalent chromium and TPH analysis, the scope of which is described in the attached Work Plan.

The soil containing hexavalent chromium detected in post-excavation eastern sidewall soil sample PE-E was removed during subsequent excavation performed eight days after sample PE-E was collected. The eastward extension of the excavation was performed to remove residual levels of several metals (including chromium) and TPH that exceeded the applicable numerical RSR criteria. ERM collected a second post-excavation sample from the newly established eastern side wall of the excavation (PE-E-2), the data for which was also included in the *2002 Annual Summary Report*. Total chromium in that sample was below the 100 mg/kg level, and all other constituents were in compliance with the applicable numerical RSR criteria. No additional sampling or remediation is required in this area of AOC-2.

5. *Section 3.13 states that of AOC-5, exceedances of applicable I/C DEC will be addressed using an ELUR and that no additional investigation other than groundwater monitoring is recommended. However, the 2002 report showed that TCE was detected in soil vapor sample SG-16 at a concentration exceeding the March 2003 proposed Industrial/Commercial Soil Vapor Volatilization Criteria (I/C SVVC). According to Figure 6, the soil gas sampling reported in the Site Report did not*

include sample points in AOC-5. Please outline WMA's intended approach for ensuring VOCs entering the facility building via vapor intrusion do not contribute to unsafe indoor air concentrations and for remediating sources of VOCs in soil vapor.

The cVOC concentrations in soil vapor below the floor in AOC-5, as identified by HRP in 1997/98, did not exceed the currently applicable I/C SVVC. Subsequent soil gas sampling by ERM included sample points in AOC-6 (SG-5, SG-6, SG-9, SG-12, SG-15 & SG-18), which surrounds AOC-5. All of these samples were below the currently applicable I/C SVVC. The available data does not indicate a need for vapor intrusion management in AOC 5.

6. *Section 3.1.5 states that for AOC-7 no additional investigation or remediation activities are required. However, the 2002 Report showed that TCE was detected in soil vapor samples SG-10 and SG10D and PCE was detected in sample SG-10D at concentrations exceeding the March 2003 proposed I/C SVVC. According to Figure 6, the soil gas sampling reported in the Site Report did not include sampling points in AOC-7. In addition, ETPH was detected at an AOC-7 catch basin, CB-6, at concentrations exceeding the I/C DEC and GB Pollutant Mobility Criteria (GB PMC). ERM's February 7, 2007 Letter to CT DEP stated that this catch basin (CB-6) was remediated in 2001 and material disposed along with the other hazardous waste removed during the excavation of the former waste lines (AOC-3) and landfill material (AOC-2). However, the 2002 Report, which reported the removal of the former waste lines, identified the need for removal of sediment from this catch basin (page 3-33): " Other than the removal of a few cubic feet of sediment from within CB-6, no remedial activities are recommended for this AOC." Please Outline WMA's intended approach for demonstrating compliance with the CT RSRs at this AOC, ensuring that VOCs entering the facility building via vapor intrusion are not contributing to unsafe indoor concentrations, and remediating sources of VOCs in soil vapor. If the Sediment with elevated levels of TPH has been removed from the catch basin CB-6, please provide documentation of this work.*

AOC 7 resides outside and downgradient of the Site building relative to groundwater flow direction. The soil gas impacts here are the result of cVOC releases from the former exterior solvent storage area. As this AOC resides outside the Site building, the SVVC do not apply. Nevertheless, all soil gas samples collected in this AOC during 1997/98 were in compliance with the currently applicable SVVC. Since groundwater flow is to the north (away from the building), VOCs in groundwater are not a threat to indoor air quality within the Site building. ERM will assess this issue relative to potential modifications to the ELUR(s) that are anticipated as part of the overall RSR compliance strategy (i.e., prohibiting future building construction).

With respect to CB-6, the TPH-impacted sediment was removed and added to the stockpiled soil and plating sludge generated during the remediation of AOC-2. This work was mistakenly not documented in the 2002 report, mainly because of the extremely minor nature of the issue. No further work is necessary relative to CB-6.

7. *Section 3.1.9 states that no remedial activities are required to satisfy the RSRs at AOC-14. However, the 2002 Report reported PCE detected in excess of the proposed I/C SVVC at SG1. Please outline WMA's intended approach for ensuring VOCs entering the facility building via vapor intrusion do not contribute to unsafe indoor air concentrations and for remediating sources of VOCs in soil vapor.*

This 1998 soil gas sampling point in question was located approximately 20 feet north of AOC-4, where a significant amount of cVOC-impacted soil was remediated in 2005 by ERM. Soil investigation work completed by ERM in 2001 did not indicate a VOC issue in soil below the slab in AOC-14. The source of the 1998 soil gas hit was clearly the cVOC-impacted soil in AOC-4, which contained elevated levels of PCE, TCE and related by-products. The 2005 removal of this soil in has eliminated the source for the soil gas detected in 1998. More recent soil gas sampling completed by ERM in 2006 supports this conclusion, as the level of PCE in soil vapor point SV-28 (14.4 ppbv), collected by ERM in close proximity to the 1998 sample location within AOC-14, was several orders of magnitude below the 1998 PCE level in SG-1 (1,309 ppbv). No additional assessment or remediation is required.

8. *Section 3.2.1 states that the MH-7 area was the only portion of AOC 3 not remediated in 2002. However, results of prior investigation show other potential CT RSR exceedances. Sample WLDPE-3 contained TPH at levels exceeding the I/C DEC. In addition, samples WLBPE-12 and WLAPE-2 contained total chromium in excess of the I/C DEC criterion for hexavalent chromium, but results of confirmatory analysis for hexavalent chromium are not presented. Please outline WMA's intended approach for demonstrating compliance with the CT RSRs at these locations.*

In the case of post-excavation sample WLDPE-3, ERM plans to resample this soil to evaluate whether the concentration of petroleum has dropped below the I/C DEC over the past eight years. If the TPH concentration in soil in this area is below the I/C DEC, then the issue will be addressed through the placement of the ELUR restricting Residential uses for the Site. If the TPH concentration in soil is still above the I/C DEC, then ERM will collect additional soil samples in the release area and evaluate the use of the 95% upper confidence to demonstrate compliance with the I/C DEC. Based on the comparative costs of the above options, ERM may opt to remove this small amount of residual TPH-impacted soil, if present, without the aforementioned additional evaluation. ERM will collect additional samples in the area of WLAPE-2 and WLBPE-12 for hexavalent chromium analysis, which is detailed in the attached Work Plan.

9. *Section 4 of the Site Report describes a proposed groundwater monitoring program for the Site. Generally, DEP and EPA accept the proposed program as a Site-wide evaluation o the compliance status for the groundwater in and around of the various AOC and for the whole Site. This comprehensive program will include monitoring of up to 30 wells with an analytical parameter list which includes metals, cyanide, VOCs and SVOCs. The program includes the wells and analytical parameters of the RCRA Post-closure groundwater monitoring for the former surface impoundments (lagoons) that was in effect from 1984 to 2002. It is also recommended that WMA analyze groundwater samples for TPH and hexavalent chromium in some wells based on the historic groundwater data and/or soil data.*

JMG will include analysis hexavalent chromium in the groundwater analytical suite when the compliance monitoring is initiated. ERM does not agree with the approach to analyze the groundwater for ETPH, since there is no standard, and there is also no evidence of residual product at the Site that would be considered LNAPL. An alternate approach would be to use TPH-related VOCs and SVOCs, for which there are applicable GB numerical groundwater criteria, as indicators for the presence of TPH constituents.

10. *Section 3.2, page 32: the last paragraph of section 3.2 describes the December 2006 soil gas survey performed by ERM. The text states that all results were below the proposed I/C SVVC. However, Table 6 shows trichloroethene results for several locations that exceed the proposed I/C AVVC, including SG-13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26 ,-27, -28, -29. Please outline WMA's intended approach for ensuring VOCs entering the facility building via vapor intrusion do not contribute to unsafe indoor air concentrations and for remediating sources of VOCs in soil vapor.*

As indicated in the answer to Question #3, the cVOC concentrations in soil gas below the Site building are in compliance with the current I/C SVVC. ERM understands that these criteria may change in the future, but at this time, the VOC concentrations are in compliance with the currently applicable criteria.

In addition, there are no significant soil-borne sources of VOCs present below the Site building. Soil sampling data from the investigation of interior AOCs, including AOC-4, AOC-5, AOC-6 and AOC-14, all substantiate this conclusion.

We trust these responses and the attached Schedule & Work Plan provide the information requested. Should you have any questions or require further clarification, please feel free to contact us at your convenience.

Very truly yours,

James L. Pfeifer, LEP
Senior Project Manager

Michael B. Teetsel, CPG
Principal

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

This Work Plan is intended to present the scope of work required to complete the investigation of the property located at 80 Wampus Lane in Milford, Connecticut (the Site). The Site location is shown in Figure 1. The Work Plan has been designed to comply with the Remediation Standard Regulations (RSRs), and the comments and directives presented in the December 2, 2008 joint-agency letter issued from Connecticut DEP and the US EPA to JMG Milford Realty (JMG) and Milford Wampus Associates, LLC (MWA), the current owners of Lots 1 & 2, respectively. These two lots, along with a third smaller parcel, cumulatively make up the Site.

Lot 1 and Lot 2 were created through the subdivision of the original 23-acre parcel located at 80 Wampus Lane. As a result of this sub-division, the Site now consists of two separate Establishments known as Lot 1 and Lot 2. Lot 1 covers 9.24 acres, and Lot 2 covers roughly 13 acres. A third 2.47-acre parcel, comprised of undeveloped forested wetlands, was also created for donation as open space to the City of Milford. There are no areas of concern located on this third parcel and it is not addressed further in this document. A Site Plan, including the individual parcels defined above, is shown on Figure 2.

Previous investigation and remediation work at the Site was completed by HRP Associates in 1997 and 1998, primarily under the RCRA Voluntary Corrective Action program. ERM used the information generated by HRP in the development of a Work Plan dated August 2000, which was presented to and approved by DEP. The scope of work presented in the August 2000 Work Plan included investigation and remediation activities at all areas of concern (AOCs) identified at the Site (Lots 1 & 2).

A subsequent Work Plan specific to AOC-1 (Stubby Plain Brook & Associated Wetlands), located on Lot 2, was generated in May 2005 by ERM in response to a formal request from DEP and EPA. This scope of work was designed to define sediment quality in the swale and to characterize soil in the adjacent stream side bank areas.

The most recent Work Plan was presented to DEP in October 2006 and addressed five areas of concern on Lot 1, where additional investigation and soil remediation was required to comply with the RSRs.

The scopes of work presented in these work plans were carried out by ERM, and documented in the following ERM Reports:

- Annual Summary Report (August 2002);
- AOC 1 Investigation Results Report (August 2005); and
- Site Investigation and Remediation Status Report (March 2008).

The scope of work presented herein is based on the comments provided by DEP and EPA in a letter dated 2 December 2008 and includes supplemental sampling and analysis of soil and sediment in the following Lot 1 and Lot 2 AOCs:

<u>Lot 1</u>

- AOC 2 – Former Sludge Landfill
- AOC 3 – Former Waste Lines
- AOC 7 – Former Hazardous Waste Storage Area

<u>Lot 2</u>

- AOC 1 - Stubby Plain Brook & Associated Wetlands
- AOC 16 - Wood Block Disposal Area

The scope of work presented herein is intended to build on the results of prior investigation activities, and fill the remaining data gaps for the Site.

2.0 AOC BACKGROUND INFORMATION

2.1 LOT 1

2.1.1 AOC 2 - Former Sludge Landfill

This RCRA unit, which straddles the boundary between Lot 1 & Lot 2, received metal hydroxide (MOH) sludge from about 1970 until 1980. The material was reportedly deposited in trenches excavated in a lattice pattern and buried. Approximately 3,700 tons of soil and sludge was removed from this area in 1997 by HRP.

In April 2002, ERM conducted additional soil investigation activities in this AOC. ERM advanced a number of test pits and soil borings and identified MOH sludge related to the former landfill that was not excavated by HRP in 1997. Once the limits of the residual sludge were identified, ERM excavated the remaining sludge and contaminated soil for eventual off-site disposal. In the December 2008 letter, three comments were provided by DEP regarding this AOC:

- Two post-excavation soil samples contained PCE at levels believed to be above the Industrial/Commercial Direct Exposure Criteria (I/C DEC).
- A potential exceedence of the I/C DEC for Total Petroleum Hydrocarbons (TPH) was noted in a soil sample from test boring TB-15.
- Post-excavation sample PE-E contained total chromium at 154 mg/kg, which exceeds the I/C DEC for hexavalent chromium.

The highest PCE concentration reported by HRP in post-excavation soil samples collected during the 1997 landfill remediation work was 2,100 µg/kg. This concentration is below the RDEC and I/C DEC. In addition, this sample originated from below the seasonal-high water table. This concentration does exceed the GB PMC; however, the PMC do not apply to this soil based on its depth relative to the groundwater table. On this basis, no additional soil sampling or remediation is required relative to PCE.

The soil containing hexavalent chromium detected in post-excavation eastern sidewall soil sample PE-E was removed during subsequent excavation performed eight days after sample PE-E was collected. The extension of the excavation was performed to remove residual levels of several metals (including chromium) and TPH that exceeded the applicable numerical RSR criteria. ERM collected a second post-excavation sample from the newly established eastern side wall of the excavation (PE-E-2), the data for which was also included in the *2002 Annual Summary Report*. Total chromium in that sample was below the 100 mg/kg level, and all other constituents were in compliance with the applicable numerical RSR criteria. No additional sampling or remediation is required in this portion of AOC-2.

Additional sampling is proposed in the area of boring TB-15 (see Section 3.1.1) to further investigate residual levels of TPH and hexavalent chromium in AOC 2.

2.1.2 AOC 3 - Former Waste Lines

This AOC consisted of four buried pipelines, totaling about 5,000 linear feet, which carried the facility's storm water, sanitary and process wastewater. Due to the nature of this AOC, portions of it are located on both Lots 1 and Lot 2. However, the majority of the AOC resides on Lot 1, therefore ERM will address this issue as part of the Lot 1 work.

ERM investigated and removed the waste lines with any identified residual impacted soil or sludge, as documented in the 2002 *Annual Report*. Impacted soil and residual sludge was removed from a number of areas along the waste lines by ERM, and soil samples were collected to confirm the condition of the remaining soil.

The December 2008 DEP letter questioned if soil remains in place with concentrations above the applicable criteria. The specific issues raised include the following:

- TPH in sample WLDPE-3 at levels exceeding the I/C DEC; and
- Total chromium in samples WLBPE-12 and WLAPE-2 in excess of the I/C DEC criterion for hexavalent chromium.

Additional sampling is proposed in Section 3.1.2 to further investigate residual levels of TPH and hexavalent chromium in AOC 3.

2.2 LOT 2

2.2.1 *AOC 1 – Drainage Swale, Stubby Plain Brook & Associated Wetland Areas*

Previous work conducted in and around AOC-1 consisted of the following activities:.

- Sediment, soil and surface water samples were collected by HRP in 1998. The sediment/soil samples were analyzed for the presence of metals, VOCs, SVOCs and TPH. The sample results indicated low levels of chlorinated VOCs, and cyanide, with higher levels of TPH, PAHs and metals. The surface water samples were analyzed for similar parameters plus pH, TOC, specific conductance and hardness. These samples were collected from within a drainage swale that received discharges from facility operations and both upstream and downstream of the swale confluence with Stubby Plain Brook.

- Five surface water samples were collected by ERM in 2002 using the same sampling stations previously utilized by HRP to assess the current condition of the surface water. The samples were sent to the lab for analysis of total PP-13 metals and VOCs using EPA Method 8260. All but one sample were found to contain copper, lead and zinc at concentrations in excess of the acute and chronic Connecticut Water Quality Standard (WQS), similar to the 1998 sampling.

- ERM collected additional soil, sediment and surface water samples in 2005 as directed by CT DEP and US EPA. The sampling was designed to supplement previous sampling work in these areas, and complete the characterization of AOC-1, impacted by historical releases of wastes to the drainage swale from the former Burndy and Framatome operations. The results of this historical sampling work in AOC-1 are documented in the *AOC 1 Investigation Results Report* (August 2005).

- Based on the prior investigation efforts, sediment and soil in and around the swale portion of AOC 1 was remediated by HRP in 2007 on behalf of Framatome. The sediment and soil in and around the swale exhibiting COCs in excess of the applicable RSR criteria were excavated and taken off-site for disposal. Post-excavation sampling confirmed the success of the remediation and the area was restored. The remediation work completed by Framatome ended at the point where the swale discharged to Stubby Plain Brook.

The investigation work performed by ERM and HRP between 1998 and 2005 was successful in characterizing the areas within and adjacent to the drainage swale where contaminants are/were present at levels in excess of the applicable RSR Criteria. The remedial work by HRP performed in 2007 was successful in removing soil and sediment exhibiting levels of COCs in excess of the applicable numerical criteria, from within and adjacent to the drainage swale. This removal effort was documented by HRP in the November 8, 2007 report titled: *Demonstration of Compliance and Request for Approval of Confirmatory Sample Results.* US EPA approved this work in a letter dated November 15, 2007. Therefore, no additional investigation or remediation of soils within and immediately adjacent to the former Swale is required.

The sediment and surface water samples collected by ERM in 2005 also provide adequate data to evaluate Stubby Plain Brook, both upstream and downstream from the former Swale discharge point to the brook. As such, no additional sampling is required to fulfill RSR characterization requirements. The sediment does contain levels of metals and SVOCs in excess of potentially applicable RSR numerical criteria. These data are provided in the August 2005 *AOC-1 Investigation Results Report*. The location of these historic sediment and surface water sample locations are depicted on Figure 5.

Historic soil sampling in AOC 1 was conducted outside the areas remediated by HRP in 2007. The results indicated scattered exceedences of the RSR criteria in 8 of 46 total samples. These data suggest that soil impacts in AOC 1 are limited and isolated, with no contiguous definable areas of impacted soil. The detected exceedences were generally found in low-lying areas proximal to Stubby Plain Brook. The detected constituents exceeding the RSR criteria included metals (beryllium, cadmium, copper and lead) and PAHs.

These sampling results indicate that additional soil evaluation in AOC 1 appears necessary to comply with the RSR characterization requirements. In particular, there are other low-lying areas along

Stubby Plain Brook downstream of the swale that have not been previously sampled. These areas are subject to periodic flooding and may contain impacted sediments transported out of the stream channel.

Also, during the August 2009 groundwater sampling event, elevated CVOC levels were identified in groundwater samples collected in MW-25, located immediately downgradient from the eastern abutting Translite property. This well contained the highest concentrations of VOCs identified at the Site. The presence of these elevated CVOCs is an indication of potential historic (or current) releases of solvents from the Translite operations that have impacted the soil and groundwater, and which have migrated onto the Site. While executing the groundwater sampling round, ERM personnel identified a pipe exiting the Translite property, which discharges to a gravel-lined drainage swale. This swale runs southeasterly through Lot 2, ultimately discharging to the wetlands located along the northeast portion of Lot 2.

Additional investigation work is proposed in Section 3.2.1 to fill the above described data gaps. In addition, a proposed scope of work to evaluate potential ecological risk in AOC 1 is presented in Section 3.2.3.

2.2.2 AOC 16 - Wood Block Disposal Area

This AOC consists of a generally rectangular area measuring approximately 150 feet long, and 75 wide, where demolition debris (wood block flooring, asphalt and concrete) was buried. These buried materials reportedly originated from historical facility construction/ modification projects conducted by either Burndy or Framatome. This AOC was not initially identified by HRP during their assessment of the Site in 1997/98; ERM subsequently identified this area of concern in 2005, which is located in a heavily wooded/overgrown area of the Site.

On January 21, 2005, ERM collected four soil samples and one sample of the wood block flooring that is buried in this area. These samples were collected during test pit activities, to assess: (1) the nature of potential contaminants in the area; (2) the distribution of the buried materials; and (3) the potential for these materials to impact soil, the adjacent wetlands and/or groundwater. The buried debris is located in a roughly 3-4 foot horizon, extending from grade down to the observed water table.

The wood block sample was analyzed for SVOCs and PP Metals. This sample contained elevated concentrations of numerous polycyclic aromatic hydrocarbons (PAHs). No metals were found above the I/C DEC. The four soil samples were analyzed for VOCs and PP Metals. No analytes were detected in soil at concentrations that exceed the above referenced applicable soil criteria. Additional soil sampling, including analysis for SVOCs, is proposed in Section 3.2.2 to fully characterize this area, and establish potential remedial/compliance requirements.

3.0 PROPOSED SCOPE OF WORK

3.1 LOT 1

The Lot 1 data gaps described above will be addressed by the collection of soil samples. The results will be compared against the following RSR criteria:

Direct Exposure Criteria – The Direct Exposure Criteria (DEC) were developed to be protective of human health in the event of direct contact with contaminated soil. Regardless of the use or zoning of the property, the Residential DEC apply to all properties in Connecticut. The RSRs also contain another set of DEC that can be applied to properties used for non-residential purposes. The Industrial/ Commercial DEC (I/C DEC) can be used on non-residential properties with the placement of an ELUR on the property with CT DEP approval. Note that the development of an ELUR generally restricts the use of the property for residential purposes as defined in the RSRs (§ 22a-133k-1(53)), and, depending on the nature of the ELUR, may restrict/modify the removal or modification of the Site building. These criteria apply to all soils within 15 feet of the ground surface regardless of the relative elevation of the water table.

Pollutant Mobility Criteria – The Pollutant Mobility Criteria (PMC) were developed to protect groundwater resources from soil-bound contaminants that could leach from soil, mobilize to the saturated zone and degrade groundwater quality. Since the groundwater in the area of the Site has been classified by the DEP as GB, the GB PMC will be used to assess the available soil data. These criteria apply to the soils located at or above the seasonal high water table.

3.1.1 AOC 2 - Former Sludge Landfill

<u>TB-15 location</u>

ERM will advance two shallow soil borings via hand auger and collect two additional soil samples in the location of the previously completed TB-15, where HRP collected a soil sample from a reported depth of 4-6 feet that contained levels of total petroleum-hydrocarbons in excess of the applicable RSR numerical criteria. These boring locations are shown on Figure 3.

One soil sample will be collected from each of the two proposed boring locations. The actual depth of these samples will be determined in the field, as the grade of this portion of the site has been lowered since HRP collected their sample. The borings will extend through the imported fill material emplaced after the excavation conducted by ERM. The samples will be collected from the upper native soil immediately below the fill material. The samples will be analyzed for TPH using the CT ETPH Method, total chromium using Method 6010 and hexavalent chromium using Method 7196.

3.1.2 AOC 3 – Former Waste Lines

Post-Excavation Sample WLD PE-3

Sample WLD PE-3 originated from the far northern end to waste line D, 60 feet south of the former discharge point to the drainage swale (See Figure 4). The sample originated from a depth of 3.5 feet (bottom of the pipe). ERM will resample the soil in this area to evaluate whether the concentration of TPH (4,000 mg/kg in 2001) has dropped below the I/C DEC of 2,500 mg/kg over the past eight years. One soil boring will be advanced via hand auger, from the same location as the original sample. One sample will be collected at the same depth as the prior sample (3.5 feet below grade) and analyzed for TPH via the CT ETPH Method.

Post-Excavation Samples WLA PE-2 and WLB PE-12

WLAPE-2 and WLBPE-12 were collected by ERM to determine the condition of the soil immediately below the removed waste lines at a depth of 4 feet below the ground surface (see Figure 4). ERM will recollect these two soil samples using a hand auger and analyze them for total chromium using Method 6010 and hexavalent chromium using Method 7196.

3.2 LOT 2

3.2.1 AOC 1 – Stubby Plain Brook & Associated Wetlands

ERM will collect up to 15 additional wetland soil samples along Stubby Plain Brook in locations shown on Figure 5 to complete the vertical and horizontal delineation of soil that exceeds the promulgated Connecticut RSR soil standards and appropriate ecological benchmarks (defined below). The exact locations will be field determined, but will include samples along the bank of the stream, and the adjacent wetland areas, located on the south side of the brook, as shown on Figure 5.

At each of the proposed sampling locations, samples will be collected from two horizons:

- 0.0 to 1.0 feet below grade (sample for full laboratory analysis, as described below);

- 2.0 to 3.0 feet below grade (sample for full laboratory analysis, as described below).

The samples will be collected using a decontaminated stainless steel hand auger. The hand auger will be used to penetrate to the desired sampling depth(s), then to withdraw an aliquot of soil. The soil will be transferred directly from the hand auger to the laboratory sample containers. Decontamination procedures are provided in the Quality Assurance Project Plan (QAPP).

Based on the previous soil sample results, the contaminants that may exceed the applicable standards and benchmarks are PAHs and metals. Soil samples collected as part of this effort will be analyzed for the following:

- Total Organic Carbon (TOC) by Standard Method 5310B;

- TPH by the Connecticut ETPH Method;

- Polycyclic Aromatic Hydrocarbons (PAHs) by USEPA Method SW846 8270;

- Site specific Metals by USEPA Method SW846 6010A (ICP). These metals include Cd, Cr, Cu, Pb, and Zn; and

- Hexavalent chromium by USEPA Method 7196. Trivalent chromium will be estimated as the difference between the total chromium and hexavalent chromium analyses.

These additional wetland soil samples are proposed to supplement the sampling preformed by ERM in May 2005, with a goal of completing the assessment of potential impacts from historical releases of hazardous materials by Burndy/Framatome during their operations at the Site.

An additional three wetland soil samples will be collected from within the gravel drainage swale that starts at the Translite property (discharge pipe), and ends in the wetland area located in the northeast portion of Lot 2 (see figure 5). One sample will be collected from immediately below the pipe discharge, a second from approximately 100 feet downstream from Translite, and a third sample at the wetland discharge point. These samples will be collected using hand tools from a depth of 0-6 inches in depth. These samples will be analyzed for the presence of VOCs, select metals and petroleum hydrocarbons.

3.2.2 AOC 16 – Wood Block Disposal Area

ERM will collect additional soil samples from this debris burial area to delineate the nature of potential impacts to soil from the wood block and concrete present. It is assumed that this material will be removed in order to comply with the RSRs and solid waste regulations. The previous soil sampling was not sufficient to fully characterize the area for RSR compliance and remedial planning.

The sampling proposed herein is focused on assessing the actual impacts to soil in the debris areas, which may contain SVOCs, VOCs and metals at levels that exceed the applicable RSR numerical criteria and/or potentially applicable ecological screening criteria. To this end, ERM proposes to advance up to twenty test pits and hand auger borings in and around the area. Approximate sample locations are shown on Figure 5, however the actual location will be selected in the field**.** The test pitting will be done in the interior of the disposal area. Two soil samples will be collected from each test pit, one from within the fill zone and one from below the fill zone. The hand auger borings will be installed around the perimeter for lateral delineation purposes. One surficial sample will be collected from the hand auger borings.

Each sample will be observed for staining and screened in the field for potential VOCs. Soil analysis will be performed by CT-certified laboratory and will include:

- TPH by the Connecticut ETPH Method;
- VOCs by USEPA Method SW846 8260;

- Polycyclic Aromatic Hydrocarbons (PAHs) by USEPA Method SW846 8270;
- Site specific Metals by USEPA Method SW846 6010A (ICP). These metals include Cd, Cr, Cu, Pb, and Zn; and
- Hexavalent chromium by USEPA Method 7196. Trivalent chromium will be estimated as the difference between the total chromium and hexavalent chromium analyses.

Because a portion of the disposal area is within a mapped wetland or wetland transition zone, there may be wetland permitting requirements associated with the investigation and/or potential remediation work. ERM will assess such requirements at the time the Lot 2 work is initiated.

3.2.3 Ecological Risk Assessment

Potential risks to ecological receptors in Lot 2 will be evaluated consistent with US EPA's current guidance for performing Ecological Risk Assessments (ERAs) entitled *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (ERAGS) (USEPA, 1997).

This guidance recommends an eight-step process for ERA. The first two steps in this program, which ERM would initially perform using the surface water, sediment and soil analysis data generated previously and as part of this Work Plan, is the Screening Level Ecological Risk Assessment (SLERA):

- Step 1: Screening-Level Problem Formulation and Ecological Effects Evaluation; and
- Step 2: Screening-Level Exposure Estimate and Risk Calculation.

At the conclusion of these two steps of the SLERA, according to USEPA, a Scientific/Management Decision Point (SMDP) is reached, which is a risk management review of the findings of the SLERA that leads to one of the following conclusions:

- Ecological risks are negligible and there is no need for remediation;
- Information is inadequate and further work is required to address data gaps; or

- The information indicates a potential risk, and a more thorough evaluation is warranted.

The data generated by ERM during this proposed scope of work, along with data previously generated, will be compared to the following comparison criteria:

Surface Water

The surface water sampling results will be compared against the following criteria:

- *Connecticut Water Quality Standards*, Chronic Freshwater Aquatic Life Criteria;
- Ecological Screening Criteria:
  - USEPA's National Recommended Water Quality Criteria: 2002,
  - Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revisions, (Oak Ridge National Laboratory (ORNL), 1996 Revision), and
  - National Oceanic and Atmospheric Administration (NOAA), *Screening Quick* Reference *Tables (SQuiRTs)*, 1999.

Sediment

The sediment sampling results from Lot 2 will be compared against the following ecological screening criteria (in order of preference):

- Ingersoll, C.G., D.M. MacDonald, N. Wang, J.L. Crane, L.J. Field, P.S. Haverland, N.E. Kemble, R.A. Lindskoog, C. Severn, and D.E. Smorong. 2000. Prediction of sediment toxicity using consensus-based freshwater sediment quality guidelines. *EPA 905/R-00/007. Table 1* – consensus based threshold effects concentrations (TECs).
- U.S. EPA. 1996. Ecotox threshold. *EPA 540/F-95/038. Table 2*. Within this table, the order of preference is: freshwater sediment quality criteria, sediment quality benchmarks, and ER-L (if applicable).
- Persaud, D., R. Jaagumagi and A. Hayton. 1993. Guidelines for the protection and management of aquatic sediment quality in Ontario. Ontario Ministry of Environment and Energy. (Lowest effect level – LEL.)

- Jones, D.S., G.W. Suter, and R.N. Hull. 1997. Toxicological benchmarks for screening contaminants of potential concern for effects on sediment-associated biota: 1997 revision. Oak Ridge National Laboratory. *ES/ER/TM-95/R4. Table 3* - Equilibrium Partitioning (EqP) derived secondary chronic value or lowest chronic value sediment quality benchmarks for organic compounds.

The sediment sampling results will also be evaluated for human direct exposure risk by comparison against the criteria described below for soil.

<u>Soil</u>

Soil screening levels for Lot 2 will be obtained from the following sources:

- Ecological Soil Screening Levels, Interim Final, USEPA, November 2003. OSWER Directives: Antimony (9285.7-61), Barium (9285.7-63), Beryllium (9285.7-64), Cadmium (9285.7-65), Cobalt (9285.7-67), and Lead (9285.7-70).
- Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Terrestrial Plants: 1997 Revision (Efroymson, Will, Suter, and Woaten, 1997).
- Toxicological Benchmarks for Potential Contaminants of Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process (Will and Suter, 1995).

The USEPA Eco SSL values will be used first, if available. For constituents having no Eco SSL, the lowest benchmark from Efroymson et al. (1997) and Will and Suter (1995) will be used, if available, to screen the data.

All of the screening levels discussed above (for each medium) will conservatively be utilized as benchmarks to represent exposure concentrations that are protective of the ecological receptors potentially exposed to site-related constituents.

The soil sampling results for Lot 2 will also be compared against the RSR Direct Exposure and Pollutant Mobility Criteria. A description of these criteria was previously presented in Section 3.1.

3.3 *GROUND WATER MONITORING*

Once all required investigation and potential remediation of soil and sediment is complete, groundwater monitoring will be required for both Lot 1 and Lot 2. This section describes the proposed scope for groundwater monitoring for Lots 1 and 2, and is based on the requirements established under the RSRs.

A synoptic round of groundwater sampling was completed in August 2009 to establish current conditions at the Site. The results of this sampling are provided in Table 1 and Figure 6. These data indicate that Copper, Cadmium and VOCs are still present in groundwater in a few areas of the Site at levels exceeding the applicable RSR numerical criteria. Figure 6 also presents a water table contour map for August 2009 and indicates flow to the north, toward Stubby Plain Brook.

As part of this sampling round, a monitoring well condition survey was performed to establish the current status of the existing wells at the Site. Table 2 includes the findings of that survey; several of the wells that ERM had proposed to sample as part of this recent round were not located, or were in poor condition and could not be sampled. However, the number, depth and distribution of the wells sampled provided good overall coverage of the Site.

Tables 3 and 4 present the wells that ERM proposes to utilize for future post-remediation and compliance groundwater monitoring for Lot 1 and Lot 2, respectively. A few of these wells, which are associated with AOC-2 and AOC-3, represent monitoring points for Lot 1 & Lot 2, and these wells are identified on the tables, and the locations of these wells are shown on Figure 6. Also, depending on whether certain wells are eventually found or if other existing wells can be used instead, replacement wells may be required in one or more locations. ERM will assess the need for replacement wells as the project progresses.

The groundwater sampling work, as required under the RSR program, will include a minimum of 2 years of quarterly and/or semi-annual groundwater sampling of points at that are representative of the AOCs identified at the Site, and representative of the overburden and bedrock aquifers. The groundwater monitoring will be used to monitor VOCs, cadmium and copper in ground water, and whether additional action is required to comply with the RSRs.

Laboratory Analysis

Each ground water sample collected from both Lots will be tested for the constituents listed below.

- VOCs by USEPA Method SW846 8260;
- 1,4-Dioxane by USEPA Method SW846 8260 with Selected Ion Monitoring (SIM);
- Cadmium, chromium, copper, lead and zinc by USEPA Method SW846 6010A (ICP);
- Hexavalent chromium by USEPA Method 7196. Trivalent chromium will be estimated as the difference between the total chromium and hexavalent chromium analyses; and
- On-site field measurements will be also be collected for pH, temperature, specific conductance, dissolved oxygen, oxidation/reduction potential and turbidity.

Sampling Data Comparison Criteria

The groundwater sampling results will be compared against the following RSR numerical criteria:

- Surface Water Protection Criteria;
- Residential Volatilization Criteria; and
- Industrial/Commercial Volatilization Criteria

4.0 PROJECT REPORTING

The results of the investigation work in Lot 1 and Lot 2 will be documented in annual reports as required under the RSRs. These reports will provide a summary of the Scope of Work, methods, results, conclusions and recommendations derived from the studies. . The reports will also identify any data gaps that require further study and recommend follow-up action, if required.

5.0 QUALITY ASSURANCE PROJECT PLAN (QAPP)

A QAPP was previously prepared in 2006 for the investigation of AOC 1. The objective of the QAPP is to set guidelines for the generation of reliable data and measurement activities such that data are scientifically valid, defensible, comparable, and of known precision and accuracy. The QAPP contains a detailed discussion of the QA/QC protocols to be used by ERM and subcontractor personnel.

6.0 *PROJECT SCHEDULE*

Proposed schedules for completion of the investigation and remediation of Lot 1 and Lot 2 have been prepared and are presented below.

TASK #	LOT 1 TASK DESCRIPTION	PROPOSED COMPLETION DATE
1	Complete Synoptic round of groundwater monitoring at Site	Completed on August 5,6 & 7, 2009
2	Submit Draft Work Plan and Schedule for Investigation of Lot 1 and Lot 2 to EPA & CT DEP	1/ 5/2010
3	Receive comments on Scope of work and schedule from EPA and CT DEP	1/15/2010
4	Finalize Scope of work for both Lot 1 & Lot 2	1/25/2010
5	Initiate supplemental Lot 1 Soil Investigation (AOC-2 & AOC-3)	2/10/2010
6	Finish supplemental soil Investigation on Lot 1	2/12/2010
7	Complete spot soil remediation required to address TPH in WLD PE- 3 sample location, if required.	2/30/2010
8	Install any required replacement GW monitoring wells	3/15/2010
9	Initiate Groundwater Monitoring on Lot 1 (Year 1-Quarterly, Year 2-Semi-Annual)	4/15/2010
10	Finish Groundwater Monitoring on Lot 1	10/15/2011
11	Complete ELURs	11/15/2011
12	Issue Annual Reports	Every December
13	Issue Final Verification for Lot 1	2/15/2012

TASK #	LOT 2 TASK DESCRIPTION	PROPOSED COMPLETION DATE
1	Meet CT DEP and EPA on-site to confirm supplemental surface water, sediment and soil sample locations in Stubby Plain Brook & soil sample locations in Wood Block Area	2/2012
2	Finalize Lot 2 investigation Work Plan and QAPP and get approval from DEP and EPA.	2/15/2012
3	Initiate Investigation of Stubby Plain Brook, Associated wetland soils and Wood Block Disposal Area (AOC-1)	3/01/2012
4	Soil, Sediment and Surface Water Sample Results Due	3/15/2012
5	Complete SLERA	4/15/2012
5	Complete report on investigation of Wood Block Area and Stubby Plain Brook, including SLERA findings and recommendations for additional work/remedial requirements.	5/15/2012
6	Develop Scope for additional investigation and/or remediation (RAP) & Submit to DEP & EPA for approval.	7/30/2012
7	Complete Milford Inland Wetlands Permit Application and presentation to Board (Initiate application process in May/June)	8/20/2012
8	Complete additional investigation and/or remediation activities described in RAP	9/30/2012
9	Complete final investigation Report for Lot 2	10/30/2012
8	Install any required replacement GW monitoring wells	2/1/2013
9	Initiate Groundwater Monitoring on Lot 2 (Year 1-Quarterly, Year 2-Semi-Annual)	3/1/2012
10	Finish Groundwater Monitoring on Lot 2	10/01/2013
11	Complete ELURs (if necessary)	11/15/2013
12	Issue Annual Reports	Every December
12	Issue Final Verification for Lot 1	December 2013

FIGURES

Scale 1:25,000

0.5 km 0 500 m

0.5 mi 0 1,000 ft

ERM
Environmental Resources Management, Inc.

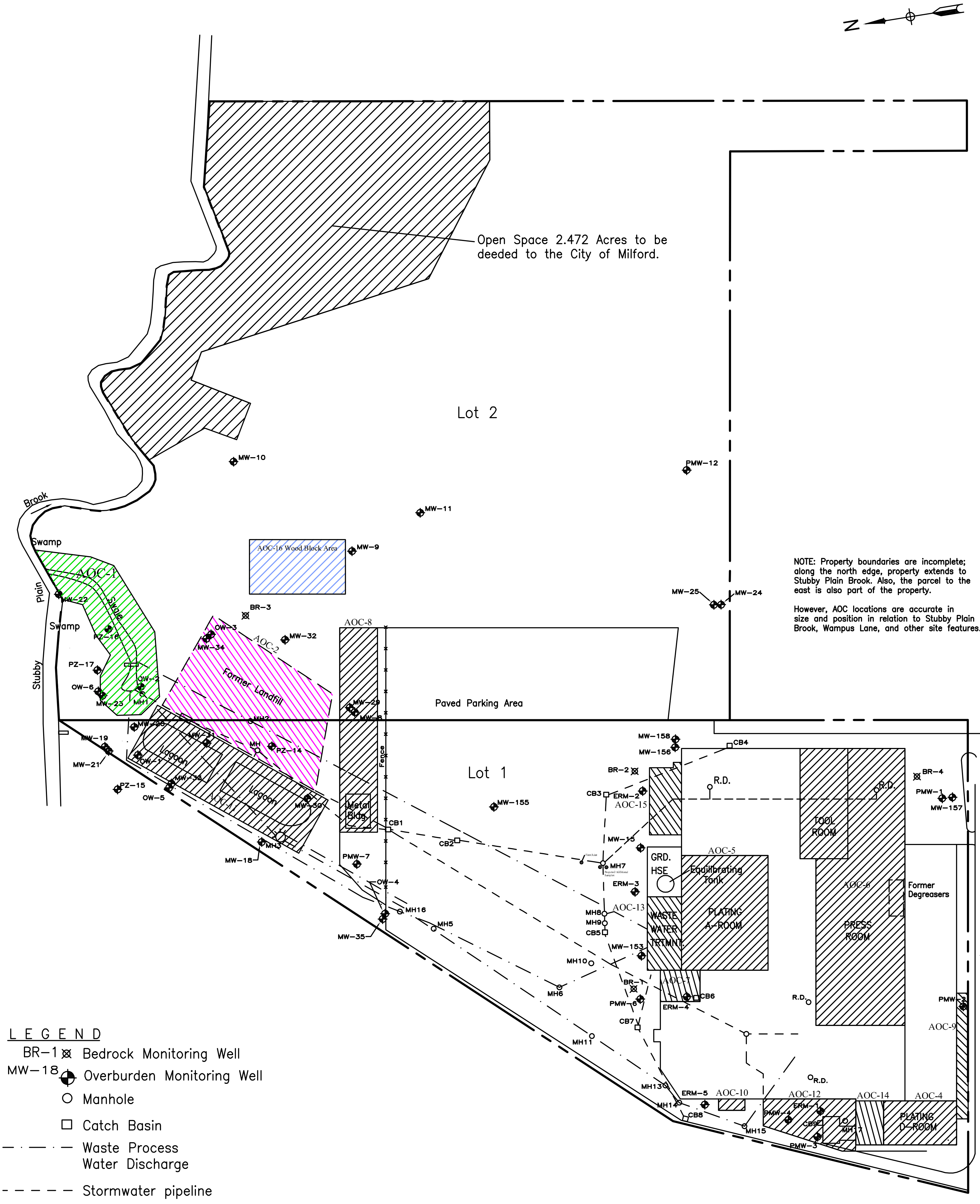
Date: January, 2008
Drawn: M. Mayo
Scale: 1:25,000
Reference Maps: Source CT.gov

Former Framatome Facility
80 Wampus Lane
Milford, Connecticut
Project No.: 0042296

Site Location Map

FIGURE
1

R:\CT Jobs\Wampus\Report- AOC\Updated Report 01-2008\Figure 1 Location Map.dwg (01/24/2008 - 1:50pm Boston)



Areas Of Concern

AOC-1 Swale area
AOC-2 Former sludge landfill
AOC-3 Underground storm and wastewater piping systems
AOC-4 Former "D" Plating Room
AOC-5 Former "A" Plating Room
AOC-6 Former Tool & Press Room
AOC-7 Former 1,000 gallon TCA tank & hazardous waste storage area
AOC-8 Former Hazardous waste storage building and material storage area
AOC-9 Fuel oil USTs
AOC-10 Former MOH sludge storage containers
AOC-11 Closed unlined MOH surface impoundments
AOC-12 Former concrete lined surface impoundments and material storage area
AOC-13 Former aqualogic/lancy wastewater treatment system
AOC-14 Former graver wastewater treatment system
AOC-15 Former materials storage area
AOC-16 Wood block disposal area

75 0 37.5 75 150 300

Figure 2 - Site Plan
Former Framatome Facility,
Wampus Milford Associates,
Milford, Connecticut

ERM

G:\Projects\0042296- Wampus\openspace.dwg

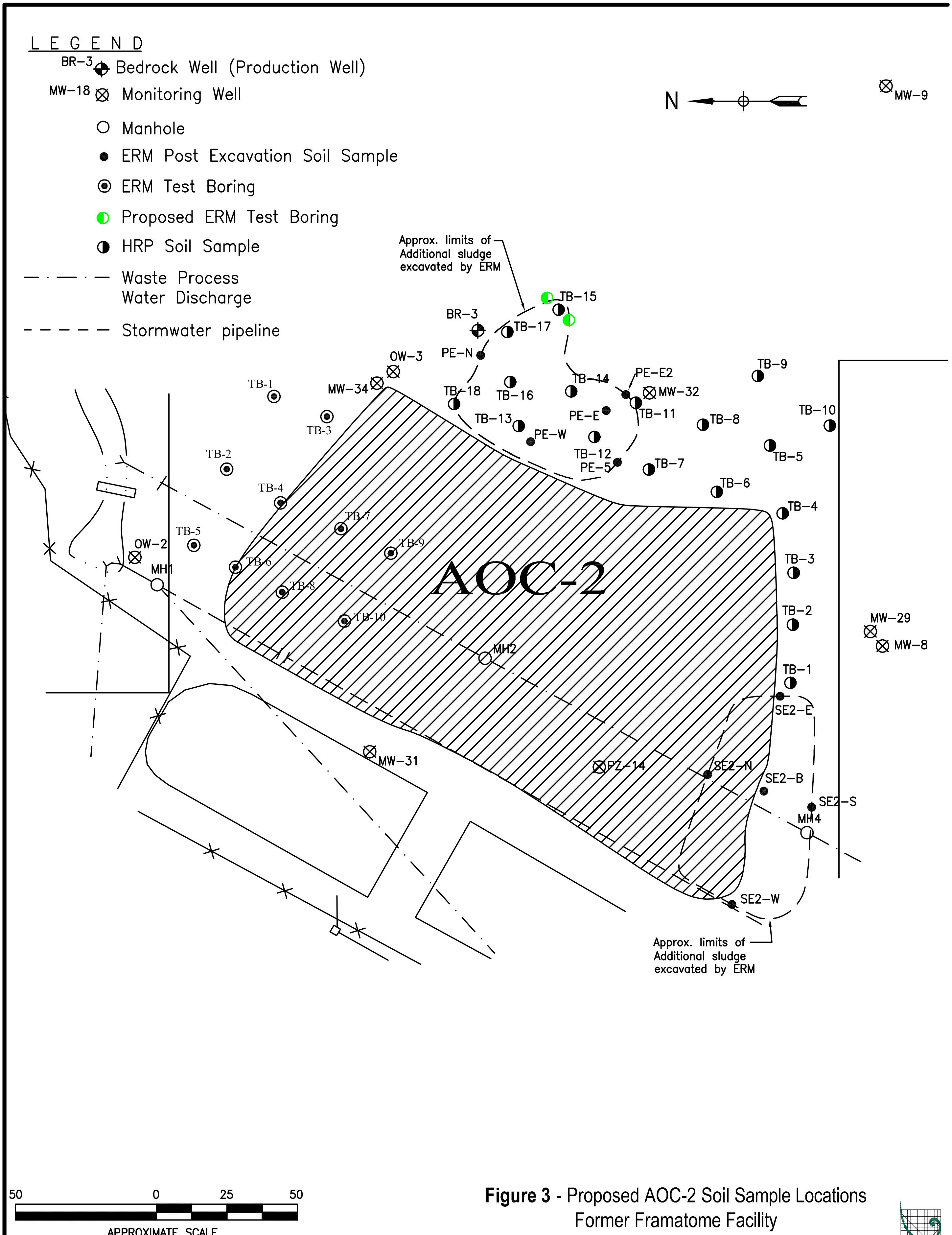
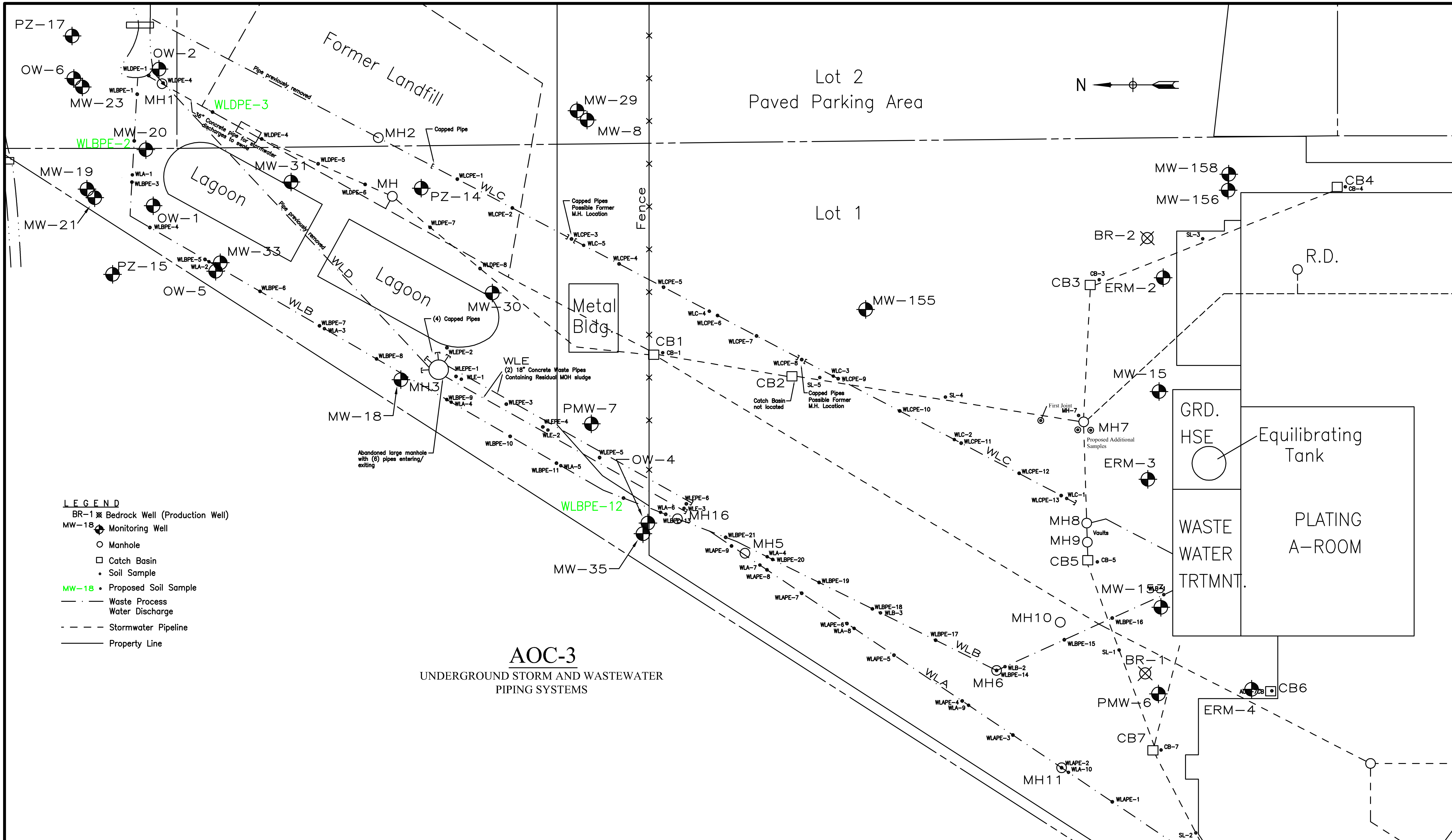


Figure 3 - Proposed AOC-2 Soil Sample Locations
Former Framatome Facility
80 Wampus Lane, Milford, CT



25 0 25 50 100

Figure 4 - Proposed AOC-3 Soil Sample Locations
Former Framatone Facility
80 Wampus Lane, Milford, CT

ERM

\\nehars01\personal$\daniel.nelsen\Documents\Working Files\Wampus\Annual Report figs.dwg (12/22/2009 - 9:03am Hartford)

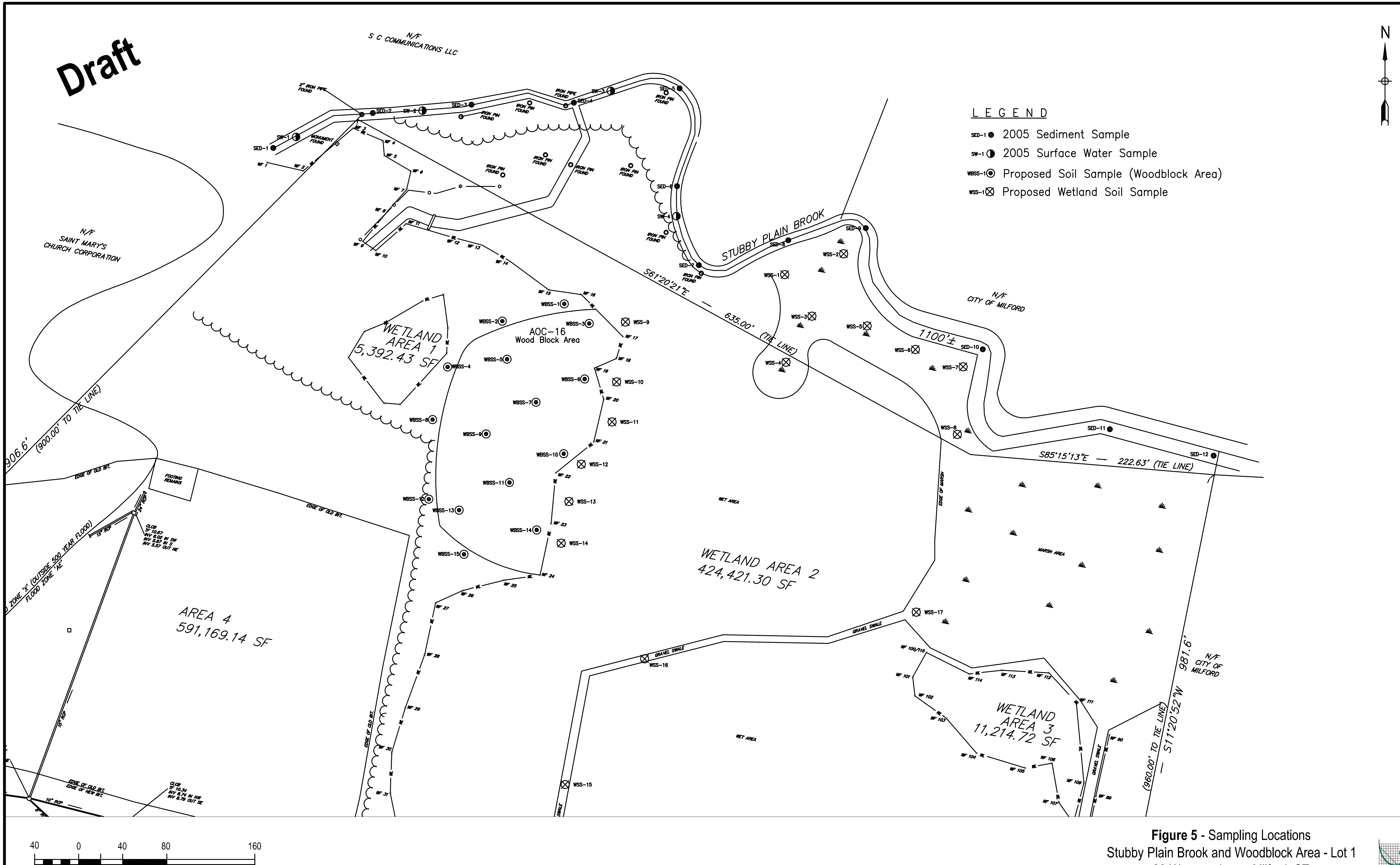
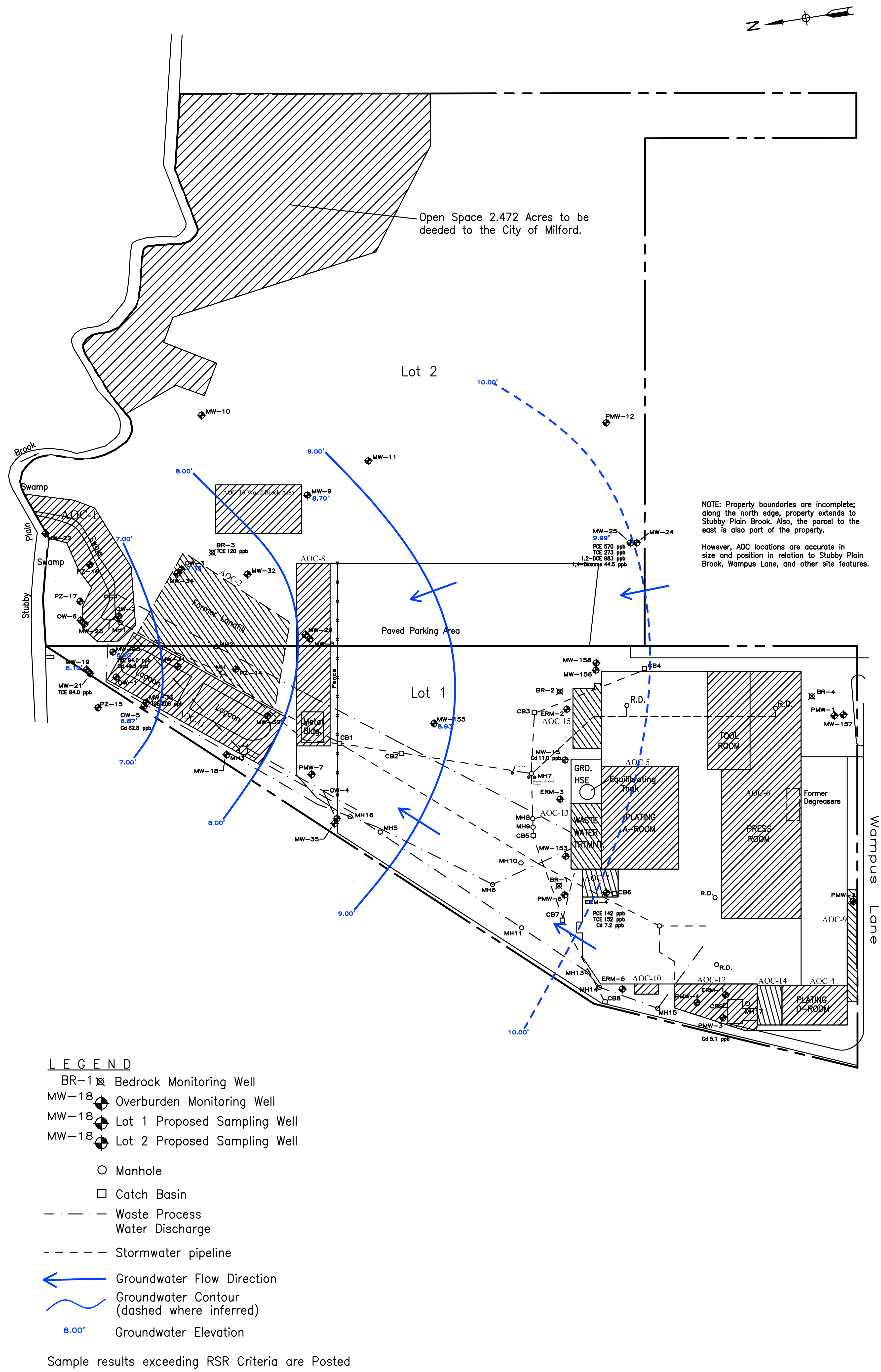


Figure 5 - Sampling Locations
Stubby Plain Brook and Woodblock Area - Lot 1
80 Wampus Lane, Milford, CT

ERM

\\neharsv01\personal$\daniel.nelsen\Documents\Working Files\Wampus\Wetland Survey.dwg (12/23/2009 - 3:47pm Hartford)



75 0 37.5 75 150 300

Figure 6 - Water Table Contour Map
August 2009 Sampling Results and Monitoring
Wells Proposed for Sampling
Former Framatome Facility,
Wampus Milford Associates,
Milford, Connecticut

ERM

G:\Projects\0042296-Wampus\openspace.dwg

TABLES

Table 1
Ground Water Results
Detections Only
80 Wampus Lane
Milford, CT

ERM Sample ID	RSR Criteria*			BR-1	BR-3	ERM-2	ERM-4	ERM-5	MW-9	MW-15	MW-20	MW-21
Lab Sample ID	SWPC	RES VC	I/C VC	SA99061-01	SA99061-02	SA99061-03	SA99061-04	SA99061-05	SA99061-06	SA99061-07	SA99061-08	SA99061-09
Date/Time Collected				05-Aug-09 14:20	07-Aug-09 10:15	05-Aug-09 09:25	05-Aug-09 12:15	05-Aug-09 15:25	07-Aug-09 12:35	05-Aug-09 11:00	06-Aug-09 10:25	06-Aug-09 11:35
SVOCs by 8270C (µg/L)												
Benzo (a) anthracene	0.3	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo (a) pyrene	0.3	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo (b) fluoranthene	0.3	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo (g,h,i) perylene	4.92	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo (k) fluoranthene	0.3	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoranthene	3700	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno (1,2,3-cd) pyrene	0.49	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phenanthrene	0.077	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Pyrene	110000	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
VOCs by 8260B (µg/L)												
1,1,2-Trichlorotrifluoroethane (Freon 113)	NE	NE	10	3.9	4.8	2.2	1.5	<1.0	<1.0	<1.0	1.5	8.4
2-Butanone (MEK)	756000	50000	50000	<10.0	<10.0	<10.0	<10.0	<10.0	15.0	<10.0	<10.0	<10.0
1,1-Dichloroethane	2538	3000	41000	1.1	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	10.0	3.7
1,1-Dichloroethene	96	190	920	2.5	**7.7**	<1.0	1.0	<1.0	<1.0	<1.0	5.2	4.2
cis-1,2-Dichloroethene	31860	830	11000	6.9	4.3	<1.0	<1.0	<1.0	<1.0	<1.0	18.3	9.0
Methyl tert-butyl ether	710	21000	50000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.8
Tetrachloroethene	88	340	810	4.3	4.0	<1.0	**143**	<1.0	<1.0	<1.0	**24.0**	4.0
1,1,1-Trichloroethane	62000	6500	16000	<1.0	1.7	<1.0	<1.0	<1.0	<1.0	<1.0	33.7	6.9
Trichloroethene	2340	27	67	**92.8**	**120**	<1.0	**152**	<1.0	<1.0	1.6	**49.5**	**94.0**
Vinyl chloride	15750	1.6	52	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**2.3**	<1.0
Tetrahydrofuran	NE	370	5900	**11.8**	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
1,4-Dioxane	NE	NE	NE	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Total Metals by 6010B (mg/L)												
Nickel	0.88	NE	NE	<0.0050	<0.0050	<0.0050	0.0079	<0.0050	<0.0050	<0.0050	0.0156	<0.0050
Cadmium	0.006	NE	NE	<0.0025	<0.0025	<0.0025	**0.0072**	<0.0025	<0.0025	**0.0110**	**0.0493**	<0.0025
Chromium	NE	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total Cyanide by EPA 335.4 (mg/L)												
Total Cyanide	0.052	NE	NE	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100

RSR Criteria = 2003 CT RSRs Proposed Numerical Criteria
NE = Not Established NA = Not Analyzed
BRL= Below Reported Limits
SWPC = Surface Water Protection Criteria - Applicable at point of GW discharge to Stubby Plain Brook.
RES VC = Residential Volatilization Criteria
Industrial/Commercial Volatilization Criteria

Exceeds I/C VC **Exceeds the SWPC**
Exceeds only Res VC

Table 1
Ground Water Results
Detections Only
80 Wampus Lane
Milford, CT

ERM Sample ID	RSR Criteria*			MW-25	MW-33	MW-155	OW-3	OW-5	PMW-3	DUP-001	Trip Blank
Lab Sample ID	SWPC	RES VC	I/C VC	SA99061-10	SA99061-11	SA99061-12	SA99061-13	SA99061-14	SA99061-15	SA99061-16	SA99061-17
Date/Time Collected				07-Aug-09 13:45	06-Aug-09 12:35	06-Aug-09 15:05	07-Aug-09 11:20	06-Aug-09 13:25	07-Aug-09 14:40	05-Aug-09 00:00	05-Aug-09 10:15
SVOCs by 8270C (µg/L)											
Benzo (a) anthracene	0.3	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	0.089	<0.050	NA
Benzo (a) pyrene	0.3	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	0.067	<0.050	NA
Benzo (b) fluoranthene	0.3	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	0.122	<0.050	NA
Benzo (g,h,i) perylene	4.92	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	0.078	<0.050	NA
Benzo (k) fluoranthene	0.3	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	0.056	<0.050	NA
Fluoranthene	3700	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	0.133	<0.050	NA
Indeno (1,2,3-cd) pyrene	0.49	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	0.067	<0.050	NA
Phenanthrene	0.077	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	**0.078**	<0.050	NA
Pyrene	110000	NE	NE	<0.050	<0.050	<0.050	<0.050	<0.050	0.111	<0.050	NA
VOCs by 8260B (µg/L)											
1,1,2-Trichlorotrifluoroethane (Freon 113)	NE	NE	10	<10.0	<1.0	<1.0	<1.0	<1.0	3.3	2.3	<1.0
2-Butanone (MEK)	756000	50000	50000	<100	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
1,1-Dichloroethane	2538	3000	41000	10.8	1.4	<1.0	<1.0	3.1	<1.0	<1.0	<1.0
1,1-Dichloroethene	96	190	920	**209**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	31860	830	11000	**983**	2.0	<1.0	<1.0	2.8	<1.0	<1.0	<1.0
Methyl tert-butyl ether	710	21000	50000	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	88	340	810	**570**	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	62000	6500	16000	19.5	2.1	<1.0	<1.0	2.2	<1.0	<1.0	<1.0
Trichloroethene	2340	27	67	**273**	**20.6**	1.3	<1.0	2.1	2.7	<1.0	<1.0
Vinyl chloride	15750	1.6	52	**23.3**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrahydrofuran	NE	370	5900	<100	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
1,4-Dioxane	NE	NE	NE	**44.5**	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Total Metals by 6010B (mg/L)											
Nickel	0.88	NE	NE	<0.0050	0.0054	<0.0050	0.0155	0.0070	0.0054	<0.0050	NA
Cadmium	0.006	NE	NE	<0.0025	<0.0025	<0.0025	<0.0025	**0.0828**	**0.0051**	<0.0025	NA
Chromium	NE	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050	0.0073	<0.0050	<0.0050	NA
Total Cyanide by EPA 335.4 (mg/L)											
Total Cyanide	0.052	NE	NE	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	NA

RSR Criteria = 2003 CT RSRs Proposed Numerical Criteria
NE = Not Established NA = Not Analyzed
BRL= Below Reported Limits
SWPC = Surface Water Protection Criteria - Applicable at point of GW discharge to Stubby Plain Brook.
RES VC = Residential Volatilization Criteria
Industrial/Commercial Volatilization Criteria

Exceeds I/C VC **Exceeds the SWPC**
Exceeds only Res VC

Table 2
Monitoring Well Summary
Synoptic Monitoring Round - August 5, 6 7, 2009
80 Wampus Lane Milford, CT

Well ID	Casing Elev. (ft)	Depth to water (ft)	Depth to Bottom (ft)	Groundwater Elev. (ft)	Notes/Comments
OW-1	10.99	-	12.98		Not found
OW-2	9.27	-			Not found
OW-3	11.93	4.60	16.03	7.33	Stick-up in good condition, needs well plug
OW-4	13.92	-	15.10		Not found
OW-5	15.12	8.25	17.35	6.87	Stick-up in good condition, needs well plug
OW-6	9.65	-	14.29		Not found
MW-8	10.56	-	8.21		Not found
MW-9	12.58	3.88	9.51	8.70	Stick-up in good condition, needs well plug
PMW-1	NM	NM	NM		Well found but PVC is slanted, can't get WLI down well - needs to be repaired
PMW-2		-			Not found
PMW-3		3.82			Flush and in good condition, needs well plug. Road box cover is old cast-iron buffalo box.
PMW-4		-			Not found
PZ-14	13.52	-			Not found
PZ-15	10.33	-	12.81		Not found
PZ-16	9.17	-	8.76		Not found
PZ-17	7.59	-	11.24		Not found
MW-15		2.80			Flush and in good condition, needs well plug.
MW-18	14.09	-	7.03		Not found
MW-19	11.46	5.31	13.91	6.15	Stick-up in good condition, needs well plug.
MW-20	11.52	5.42	13.71	6.10	Stick-up in good condition
MW-21	9.98	3.07	34.33	6.91	Stick-up in good condition, needs well plug
MW-22	8.12	-	10.95		Not found
MW-23	9.83	-	29.53		Not found
MW-24	14.11	4.77	36.15		Stick-up in good condition, needs well plug
MW-25	14.17	4.18	13.91	9.99	Stick-up in good condition, needs well plug
MW-29	10.52	-	20.54		Not found
MW-30	14.50	-	13.14		Not found
MW-31	13.70	-	11.54		Not found
MW-32	12.43	-	13.42		Not found
MW-33	13.93	7.40	34.49	6.53	Stick-up sinking, needs well plug. PVC needs to be cut by ≈ 4" due to stick-up casing sinking
MW-34	12.46	5.68	27.88	6.78	Stick-up in good condition, needs well plug
MW-35	15.01	6.38	33.80	8.63	Stick-up in good condition, needs well plug
MW-153	11.41	-	11.48		Not found
MW-155	12.03	3.10	12.55	8.93	Flush and in good condition
MW-157	21.15	-	47.91		Not found
ERM-1		-	12.10		Not found
ERM-2		2.36	12.20		Flush, missing one bolt for cover
ERM-3		-	10.20		Not found
ERM-4		0.50	12.40		Flush and in good condition
ERM-5		3.57	12.20		Flush and in good condition
BR-1		2.41	124.00		Flush, missing one bolt for cover, no 6" well plug (might not fit)
BR-2		-	127.00		Not found
BR-3		3.24	144.00		Top of casing bent and broken, well cap is the same
BR-4		-	104.00		Not found

Wells sampled for initial Baseline Sampling Event for Lot 1
Wells used for depth to water only
Wells not originally proposed for sampling but used as substitutes
Well originally scoped for synoptic round but not sampled (not found or damaged)
NM - not measured

Table 3
Proposed GW Monitoring Wells
Lot 1 - 80 Wampus Lane Milford, CT

Well ID	Casing Elev. (ft)	Depth to water (ft) *	Depth to Bottom (ft)	Groundwater Elev. (ft) *	Notes/Comments/AOC affiliation
OW-1	10.99		12.98		
OW-2*	9.27		11.32		May be destroyed due to Swale Remediation
OW-4	13.92		15.10		
OW-5	15.12		17.35		Shallow OB well - AOC-2 & 11
MW-8*	10.56		8.21		Shallow OB well - AOC-8
PMW-1					Shallow Upgradient OB well
PMW-3					Shallow OB well - AOC-4 & 14
PMW-4					
PZ-14	13.52		10.01		Shallow OB Monitoring point - AOC-2
PZ-15	10.33		12.81		
MW-15					Shallow OB well - AOC-5 & 6
MW-18	14.09		7.03		
MW-19	11.46		13.91		
MW-20	11.52		13.71		Deep OB Well - AOC-11 & 2
MW-21	9.98		34.33		Deep OB Well - AOC-11 & 2
MW-29*	10.52		20.54		Intermediate OB Well - AOC-8
MW-30	14.50		13.14		Shallow OB Well - AOC-11 & 8
MW-31	13.70		11.54		
MW-33	13.93		34.49		Deep OB Well - AOC-11 & 2
MW-35	15.01		33.80		
MW-153	11.41		11.48		Shallow OB Well - AOC-5
MW-155	12.03		12.55		Shallow OB Well - AOC-3 (Manhole 7) & AOC-15
MW-157	21.15		47.91		Deep Upgradient OB well
ERM-1			12.10		
ERM-2			12.20		Shallow OB Well - AOC-15
ERM-3			10.20		Shallow OB Well - AOC-5 & 13
ERM-4			12.40		Shallow OB Well - AOC-7 & AOC-6
ERM-5			12.20		Shallow OB Well - AOC-10, 12 & 14
BR-1			124.00		Bedrock Well near AOC-5, 7 & 13
BR-2			127.00		Bedrock Well downgradient from AOC-6 & 15
BR-3*			144.00		Bedrock Well near AOC-2 & Wood Block Area
BR-4			104.00		Upgradient Bedrock Well

Wells proposed for RSR Compliance & Post-remediation groundwater monitoring for Lot 1, and sampled during August 2009 round
Wells proposed for RSR Compliance & Post-remediation groundwater monitoring for Lot 1, Not sampled during August 2009 round
* - Wells located on Lot 2, to be used for both Lots

Table 4
Proposed GW Monitoring Wells
Lot 2 - 80 Wampus Lane Milford, CT

Well ID	Casing Elev. (ft)	Depth to water (ft)	Depth to Bottom (ft)	Groundwater Elev. (ft)	Notes/Comments
OW-2	9.27		11.32		Located at former waste line discharge point to Swale - likely destroyed due to swale remediation (AOC-1)
OW-3	11.93		16.03		Shallow Lot 2 Monitoring point (AOC-2 & Wood Block Area)
OW-6	9.65		14.29		Down Gradient from AOC-1 - possibly destroyed due to swale remediation
*MW-8	10.56		8.21		Not found - Lot 1 & Lot 2 point (AOC-8)
MW-9	12.58		9.51		Within or just upgradient from Wood Block Area
MW-10					Upgradient from Wetlands, east of Wood Block Area
MW-11					In forest, 80 feet upgradient from MW-9
PZ-16	9.17		8.76		Likely destroyed due to Swale Remediation (AOC-1)
PZ-17	7.59		11.24		Down Gradient from west end of former swale (AOC-1) (May be destroyed)
PMW-12					Cross to downgradient from Translite (upgradient monitoring point)
MW-22	8.12		10.95		Down Gradient from east end of former swale (AOC-1) (May be destroyed)
MW-23	9.83		29.53		Deep OB aquifer monitoring point, downgradient from westrn end of AOC-1 - (may be destroyed)
MW-24	14.11		36.15		Deep OB Well - Immediately downgradient from Translite
MW-25	14.17		13.91		Shallow OB well - Immediately downgradient from Translite
*MW-29	10.52		20.54		Intermediate depth OB well - Area obscurred, not found (Lot 1 & 2 point)
MW-32	12.43		13.42		Upgradient from Landfill (AOC-2) - Area overgrown, not located
MW-34	12.46		27.88		Deeper Overburden Well within former landfill
*BR-3			144.00		Located adjacent to Former Landfill area

Wells proposed for RSR Compliance & Post-remediation groundwater monitoring for Lot 2 - not sampled during August 2009 Synoptic round
Wells proposed for RSR Compliance & Post-remediation groundwater monitoring for Lot 2 - sampled during August 2009 round
* - Lot 1 & Lot 2 Monitoring Point